



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,405	03/26/2001	Osamu Toyama	48864-037	7236

7590 04/11/2005

MCDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
----------

NGUYEN, PHU K

ART UNIT	PAPER NUMBER
----------	--------------

2673

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/816,405

**Applicant(s)**

TOYAMA ET AL.

**Examiner**

Phu K. Nguyen

**Art Unit**

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-15 and 18-31 is/are rejected.
- 7) ☐ Claim(s) 16-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

*Phu K. Nguyen*  
**PHU K. NGUYEN**  
**PRIMARY EXAMINER**  
**GROUP 2400**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12-15, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over MAURER et al. (6,580,811).

As per claim 12, Maurer teaches the claimed "processor" comprising: "an obtaining section for obtaining original data generated by measurements" (Maurer, feature positions, jets, column 4, lines 58-67); a first modifying section for modifying a first standard model based on the obtained data, the first standard model being previously prepared independently of the obtaining of original data (Maurer, texture information); "a second modifying section for modifying a second standard model, the

Art Unit: 2673

second standard model being relative to the first standard model (Maurer, the avatar can be a combination of different models such as skin and muscle models, column 13, lines 1-45). It is noted that Maurer does not explicitly teach the modification of the second model being "based on an effect of the modification of the first standard model". However, it would have been obvious for the modification of the second model being "based on an effect of the modification of the first standard model" because Maurer facial texture feature as skin model and underlying muscle features are closed related and directly effect each other (Maurer, muscle-based models where muscles and skin are modeled using physical models, column 13, lines 1-2).

**Applicant's arguments** filed December 17, 2003 have been fully considered, but they are not deemed to be persuasive. Applicant argues that the Maurer reference does not teach "the texture information is modified based on the obtained jets of figures 2 and 17" which is not correct. The original texture is prepared as two facial images (Maurer, column 12, lines 31-33); and then this texture is modified based on the tag facial features of column 4, lines 58-67 before mapping into the mesh (Maurer, column 14, lines 17-19).

Applicant provides the same argument for claims 12, 18, 20, and 21 and that argument, as explained above, are not deemed to be persuasive; therefore, they are rejected as unpatentable under 35 USC 103(a).

Claim 13 adds into claim 12 "wherein the first standard model is a model for skin and the second standard model is a model for skeleton or a model for muscle, the original data being data whose object is a surface of a human head" which Maurer suggests in column 13, lines 1-45 in which the texture feature might be the skin and the expressional feature might relate to the muscle.

Claim 14 adds into claim 12 "wherein the first standard model has a plurality of construction points corresponding to which a plurality of control points are defined; the second standard model has a plurality of construction points corresponding to which some of the control points defined by the first standard model are defined; the first standard model is modified in accordance with movements of the construction points which move in accordance with movements of the control points; and the second standard model is modified in accordance with movements of the construction points which move in accordance with movements of the control points" which Maurer teaches in figures 12-13.

Claim 15 adds into claim 14 "wherein the control points for moving the construction points of the second standard model are corrected when adopting a result of the modification of the first standard model" which Maurer suggests in column 11, lines 26-35.

As per claim 18, Maurer teaches the claimed "process" comprising: "obtaining original data generated by measurements" (Maurer, feature positions, jets, column 4, lines 58-67); "modifying a first standard model which has been prepared separately from the obtaining of the original data based on the obtained original data" (Maurer, texture information); "modifying a second standard model corresponding to the first standard model" (Maurer, the avatar can be a combination of different models such as skin and muscle models, column 13, lines 1-45). It is noted that Maurer does not explicitly teach the modification of the second model being "based on an effect of the modification of the first standard model". However, it would have been obvious for the modification of the second model being "based on an effect of the modification of the first standard model" because Maurer facial texture feature as skin model and underlying muscle features are closed related and directly effect each other (Maurer, muscle-based models where muscles and skin are modeled using physical models, column 13, lines 1-2).

Claim 19 adds into claim 18 "wherein the first standard model has a plurality of construction points, and a plurality of control points are defined corresponding to the construction points; the second standard model has a plurality of construction points and some of the control points defined by the first standard model are defined corresponding to the construction points; the first standard model is modified in accordance with movements of the construction points which move with the control points move; and the second standard model is modified in accordance with

Art Unit: 2673

movements of the construction points which move with the control points move" which Maurer teaches in figures 12-13.

As per claim 20, Maurer teaches the claimed "processor" comprising: "an obtaining section for obtaining original data generated by measurements" (Maurer, feature positions, jets, column 4, lines 58-67); "a storage section for storing a first data representing a standard skin model of a human head and a second data representing a standard skeleton model or a standard muscle model of the human head, the first data and the second data are corresponding to each other" (Maurer, the avatar can be a combination of different models such as skin and muscle models, column 13, lines 1-14, in which the texture feature might be the skin and the expressional feature might relate to the muscle); and "a processing section for modifying the first data and the second data" (Maurer, column 13, lines 14-45). It is noted that Maurer does not teach "the standard skin model and the standard skeleton model or standard muscle model fit with the measured surface form". However, it would have been obvious for "the standard skin model and the standard skeleton model or standard muscle model fit with the measured surface form" because Maurer facial texture feature and underlying muscle features are closely related and directly effect each other.

As per claim 21, Maurer teaches the claimed "computer program for modeling, which enables a computer" to perform the steps of: "obtaining original data generated

Art Unit: 2673

by measurements" (Maurer, feature positions, jets, column 4, lines 58-67); "modifying a first standard model which has been prepared separately from the obtaining of the original data based on the obtained original data" (Maurer, texture information; column 14, lines 17-19); "modifying a second standard model corresponding to the first standard model" (Maurer, column 13, lines 14-45). It is noted that Maurer does not explicitly teach the modification of the second model being "based on an effect of the modification of the first standard model". However, it would have been obvious for the modification of the second model being "based on an effect of the modification of the first standard model" because Maurer facial texture feature as skin model and underlying muscle features are closed related and directly effect each other (Maurer, muscle-based models where muscles and skin are modeled using physical models, column 13, lines 1-2).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.



Claims 22-25, 27, and 30-31 are rejected under 35 U.S.C. 102(e) as being anticipated by MAURER et al. (6,580,811).

As per claim 22, Maurer teaches the claimed "device for modifying a surface based on a three-dimensional point group" (Maurer, the avatar's facial surface, column 11, lines 55-60) comprising: "a selection section for selecting a plurality of partial areas from the point group" (Maurer, figures 12-13; facial features, jets; column 4, lines 58-67) and "a modifying section for modifying a surface based on a point group of each of the selected partial areas" (Maurer, figures 16A-16B; the original texture is prepared as two facial images in column 12, lines 31-33; and then this texture is modified based on the tag facial features of figures 2 and 17 before mapping into the mesh column 14, lines 17-19).

**Applicant's arguments** filed December 17, 2003 have been fully considered, but they are not deemed to be persuasive. Applicant argues that the Maurer reference does not teach "where a surface or a 3D model that is the base of modification is prepared beforehand for subsequent modification" which is not correct. The original texture is prepared beforehand as two facial images (Maurer, column 12, lines 31-33); and then this texture is modified subsequently based on the tag facial features of column 4, lines 58-67 before mapping into the mesh (Maurer, column 14, lines 17-19).

Applicant argues that the object of Maurer et al. is to imitate facial expression and is not to imitate shape which is not persuasive because Maurer's jets (column 4,

lines 58-67) will modify the facial features of the facial surface and therefore will change the shape of the facial surface in 3D model (e.g., column 11, lines 1-6).

Applicant provides the same argument for claims 22-24, 27 and that argument, as explained above, are not deemed to be persuasive; therefore, they are rejected as unpatentable under 35 USC 102(e).

As per claim 23, Maurer teaches the claimed "method for generating a three-dimensional model" comprising: "selecting a plurality of partial areas from measurement data obtained by measuring an object" (Maurer, figures 12-13; facial features, jets; column 4, lines 58-67) and "modifying a three-dimensional model based on the measurement data of each of the selected partial areas" (Maurer, figures 16A-16B).

As per claim 24, Maurer teaches the claimed "modeling device for generating a three-dimensional model" comprising: "a selection section for selecting a plurality of partial areas from measurement data obtained by measuring an object" (Maurer, figures 12-13; facial features, jets; column 4, lines 58-67) and "a modifying section for modifying a three-dimensional model based on a measurement data of each of the selected partial areas" (Maurer, figures 16A-16B).

Claim 25 adds into claim 24 "wherein the modifying section performs modification with respect to the standard model based on the whole measurement data before

performing modification based on the measurement data of each of the partial areas” which Maurer teaches in column 13, line 35 to column 14, line 30.

**Applicant’s arguments** filed December 17, 2003 have been fully considered, but they are not deemed to be persuasive. Applicant argues that the Maurer reference does not teach “a standard model being used for modification” which is not correct. The original texture is prepared as two facial images (Maurer, column 12, lines 31-33); and then this texture is modified based on the tag facial features of column 4, lines 58-67 before mapping into the mesh (Maurer, column 14, lines 17-19). In this interpretation, the original texture (column 12, lines 31-33) is labeled as “a standard model” used for a later modification by the jets (column 4, lines 58-67).

Claim 30 adds into claim 34 “one of the partial areas selected by the selection section includes an area overlapping the other partial area” (Maurer, e.g., the tongue area overlaps with the mouth area; column 11, lines 29-45).

Claim 31 adds into claim 24 “the data reduction process is performed with respect to data of the partial area selected by the selection section” (Maurer, the tracked facial features or jets are performed on the coarsest level to reduce the processed time; column 7, lines 8-27; column 11, lines 7-25).

As per claim 27, Maurer teaches the claimed "computer program for generating a three- dimensional model that enables a computer" to perform steps of: "selecting a plurality of partial areas from measurement data obtained by measuring an object" (Maurer, figures 12-13; facial features, jets; column 4, lines 58-67) and "modifying a three-dimensional standard model based on measurement data of each of the selected partial areas" (Maurer, figures 16A-16B).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over MAURER et al. (6,580,811).

Claim 26 adds into claim 24 "wherein control points for modifying the standard model is defined on the standard model, and at least one of the control points, reduction rate for reducing a number of measurement data" (Maurer, the coarse-to-fine approach; column 10, line 57 to column 11, line 25). It is noted that Maurer does not teach "an evaluation function for determining a degree of modification of the standard model is changed". However, it would have been obvious for using "an evaluation function for determining a degree of modification of the standard model is changed" because the modification measuring of the original model are used in locating the mesh configuration of the standard model (Maurer, column 14, lines 19-22).

**Applicant's arguments** filed December 17, 2003 have been fully considered, but they are not deemed to be persuasive. Applicant argues that the Maurer reference does not teach "where a surface or a 3D model that is the base of modification is prepared

Art Unit: 2673

beforehand for subsequent modification" which is not correct. The original texture is prepared beforehand as two facial images (Maurer, column 12, lines 31-33); and then this texture is modified subsequently based on the tag facial features of column 4, lines 58-67 before mapping into the mesh (Maurer, column 14, lines 17-19).

Applicant argues that the object of Maurer et al. is to imitate facial expression and is not to imitate shape which is not persuasive because Maurer's jets (column 4, lines 58-67) will modify the facial features of the facial surface and therefore will change the shape of the facial surface in 3D model (e.g., column 11, lines 1-6).

Applicant argues that the Maurer reference does not teach "a standard model being used for modification" which is not correct. The original texture is prepared as two facial images (Maurer, column 12, lines 31-33); and then this texture is modified based on the tag facial features of column 4, lines 58-67 before mapping into the mesh (Maurer, column 14, lines 17-19). In this interpretation, the original texture (column 12, lines 31-33) is labeled as "a standard model" used for a later modification by the jets (column 4, lines 58-67).

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The modification of whole object and selected partial areas are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The modification of the whole object and selected partial areas or the modification of the whole object before modification the selected partial data do not have clear support in the disclosure and the figures.

Claims 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: in claim 16, which depends on claim 14, the relationship between the first and second standard models has been defined as "control points corresponding to the construction points of the second standard model are control points corresponding to construction points among the construction points of the modified first standard model which are the closest to the construction points of the second standard model".

The following is a statement of reasons for the indication of allowable subject matter: in claim 17, which depends on claim 14, the relationship between the first and second standard models has been defined as "control points corresponding to

Art Unit: 2673

construction points of the second construction points are control points corresponding to points obtained by projecting the construction points of the second standard model on the first standard model".

Claims 1-11 are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

Art Unit: 2673

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, bipin Shalwala can be reached on (571) 272 7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu K. Nguyen  
March 26, 2005

  
**PHU K. NGUYEN**  
**PRIMARY EXAMINER**  
**GROUP 2400**